National Institute of
Nursing Research

*Division of Intramural Research*

# Annual Report

**FISCAL YEAR 1994**

October 1, 1993 -
September 30, 1994

U.S Department of Health and
Human Services
Public Health Service
National Institutes of Health

# Annual Report of the Division of Intramural Research
# National Institute of Nursing Research
# National Institutes of Health
# Fiscal Year 1994

**Annual Report of the Division of Intramural Research**
**National Institute of Nursing Research**
**National Institutes of Health**
**Fiscal Year 1994**

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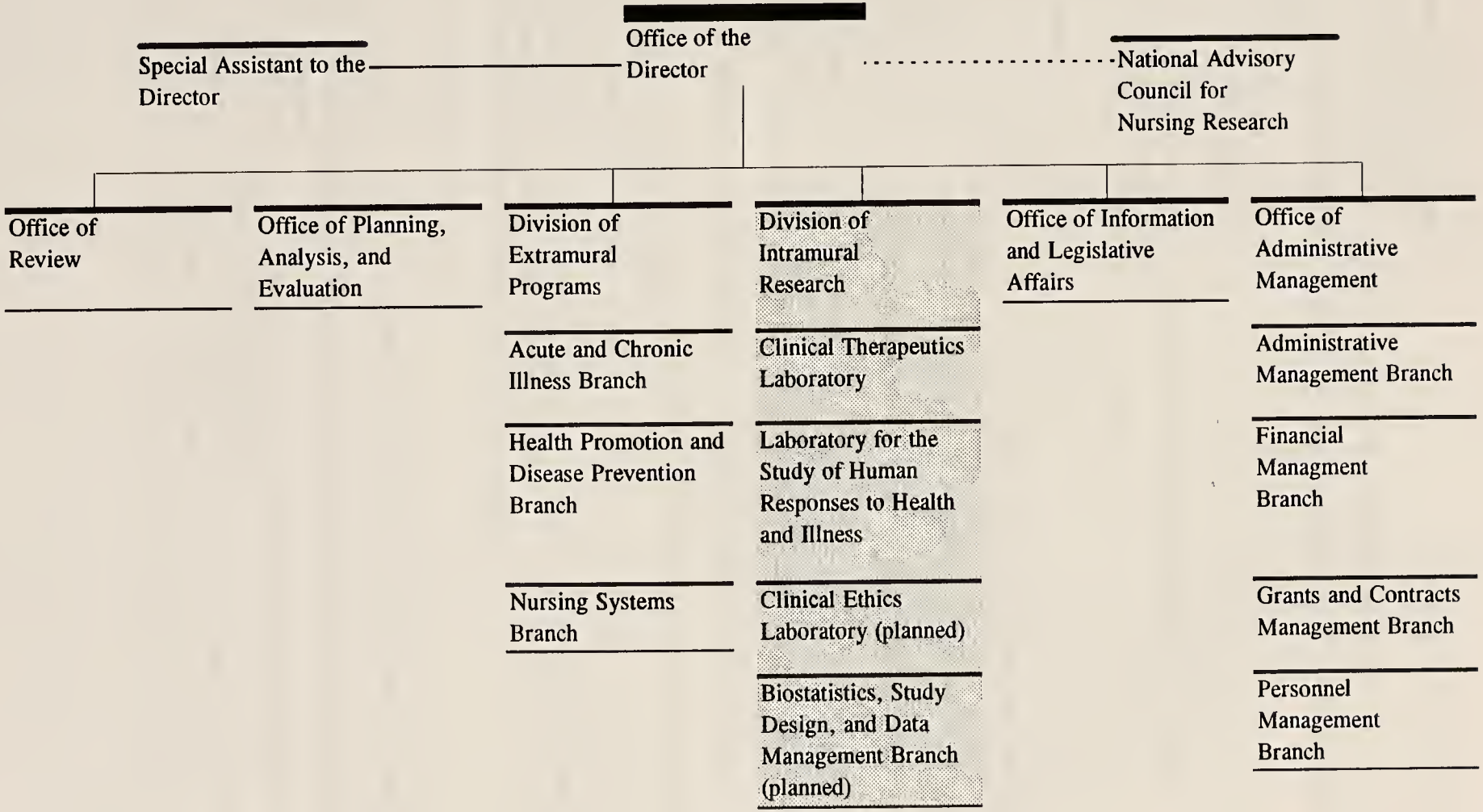
# National Institute of Nursing Research



## OVERVIEW OF THE LABORATORIES OF THE DIVISION OF INTRAMURAL RESEARCH

Aims of the NINR Intramural Program

- Develop and conduct programs of research relevant to nursing practice and health care.
- Provide training for nurse scientists.
- Disseminate research findings for nursing practice.

**Clinical Therapeutics Laboratory [CTL]** *(Existing)*

Responsible for a scientific program that studies the biophysiologic and behavioral basis for and the effectiveness of clinical therapeutics relevant to nursing practice and health care, including:

- Prevention, detection, and treatment of symptoms occurring as a result of diseases, health conditions, or injuries;
- Prevention, identification, and treatment of side effects occurring as a result of treatment of illness, health conditions, or injuries;
- Processes and factors that increase compliance with prevention, diagnostic, or therapeutic regimens and health-related recommendations; and
- Mechanisms and approaches that improve safe and effective administration of therapies.

**Laboratory for the Study of Human Responses to Health and Illness [HRHI]** *(Existing)*

Conducts a scientific program regarding the biophysiologic and behavioral aspects of human responses that occur in health and illness, including

- Processes, mechanisms, and environments that influence health, and health-promoting and health-maintaining behaviors;
- Interventions that reduce the risk of illness, as well as minimize impairments or complications that result from disease, health conditions, or injuries; and
- Interventions that facilitate adaptation to illness or disability.

**Clinical Ethics Laboratory** *(Planned)*

Responsible for a scientific program that studies the ethical bases of and framework for nursing practice and health care delivery, including:

- Particular ethical questions that face patients and families in health care situations or as participants in clinical research;
- The decision-making process utilized by nurses and other health care professionals in resolving ethical dilemmas and questions that arise in practice;
- The ethics-related consequences of decisions, practices, or policies made by nurses, other health care professionals, or health care institutions; and
- Processes, factors, or environments that influence the ethical practice of nursing or delivery of health care.

**Biostatistics, Study Design, and Data Management Branch** *(Planned)*

- Provides expertise and leadership regarding study design, data management, and statistical analysis for major activities of the Division of Intramural Research, involving the design, conduct, monitoring, and statistical analysis of intramural studies of:
  (a) the biophysiologic and behavioral basis for the effectiveness of clinical therapeutics relevant to nursing practice and health;
  (b) the biophysiologic and behavioral aspects of human responses that occur in health and illness; and
  (c) the ethical bases of, and framework for, nursing practice and health care delivery;
- Develops new research designs, as well as statistical and biometric methods, related to the research initiatives of the intramural programs;
- Maintains computerized data collection systems for intramural studies; and
- Works closely with interested laboratories to improve data management.

## Division of Intramural Research Personnel

| | |
|---|---|
| Acting Scientific Director | Carolyn L. Murdaugh, PhD, RN |
| Acting Clinical Director | Christine Grady, PhD, RN |
| Program Assistant | Robin L. Gruber |

Clinical Therapeutics Laboratory

| | |
|---|---|
| Acting Chief | Christine Grady, PhD, RN |
| Senior Staff Fellow | Mary H. Palmer, PhD, RN |
| Senior Research Nurse Specialist | Robin E. Anderson, MBA, RN |

Laboratory for the Study of Human Responses to Health and Illness

| | |
|---|---|
| Chief | Carolyn L. Murdaugh, PhD, RN |
| Senior Staff Fellow | Nancy Kline Leidy, PhD, RN |
| Research Nurse | Sakineh Walther, RN |
| Research Nurse | Kathy Fedenko, RN |

## History of the Division of Intramural Research

The National Center for Nursing Research (NCNR) was authorized under the Health Research Extension Act of 1985 and created as an entity at the National Institutes of Health in April 1986. In June 1993, the NCNR was redesignated the National Institute of Nursing Research (NINR), the 17th Institute of NIH. The mission of the NINR is "Science to strengthen nursing practice and health care that promotes health, prevents disease, and ameliorates the effects of illness and disability". The NINR is the NIH focal point for the development, conduct, and support of biomedical and behavioral research and research training programs for nursing. NINR-supported research contributes to the health of all Americans by improving patient care through promoting health and preventing disease, understanding and mitigating the effects of acute and chronic illnesses and disabilities, and improving patient care as well as the environment in which it is delivered. Similar to each of the other Institutes, Centers, and Divisions (ICDs) at the NIH, the NINR receives its annual appropriation from Congress, which has grown from $15.9 million in Fiscal Year (FY) 86 to $51.0 million in FY94.

When the NINR was established at the NIH, initial activities were extramural, utilizing grants and contracts to fund nursing research and research training activities conducted at academic and research institutions around the United States. The Division of Extramural Programs has three branches: the Acute and Chronic Illness Branch, the Health Promotion/Disease Prevention Branch, and the Nursing Systems Branch.

Ada Sue Hinshaw, PhD, RN, the first Director of the NCNR, identified five long-range planning priorities for the first five years (1988-1992) of NCNR's development. They included: (1) Develop a National Nursing Research Agenda (NNRA); (2) Establish a career trajectory for research training and career development; (3) Develop an intramural research program; (4) Facilitate collaboration with other scientific disciplines; and (5) Develop an international nursing research program. The priorities were expanded to provide continued guidance in the second five years (1993-1998) as follows: (1) Advance scientific opportunities while attaining a balance among research requirements for nursing practice, society's health needs, and resources; (2) Direct the evolution of a National Nursing Research Agenda to identify and project nursing research priorities; (3) Augment the career trajectory for nursing research training and career development; (4) Strengthen NINR's intramural scientific and research training programs, structure, and resources; (5) Disseminate research results to nursing/interdisciplinary scientific and practice communities, as well as the public; and (6) Broaden international networks for advancement of nursing research.

The National Nursing Research Agenda (NNRA) was launched to provide a process for identifying research priorities. The research priorities identified in 1988 for the first phase of the NNRA included:

- Low Birthweight: Mothers and Infants
- HIV Infection: Prevention and Care
- Long Term Care for Older Adults
- Symptom Management: Pain
- Nursing Informatics: Enhancing Patient Care
- Health Promotion for Older Children and Adolescents
- Technology Dependency Across the Lifespan

Even while formal long range planning for NINR's HIV infection and AIDS research program was ongoing through its NNRA process, NINR, along with other institutes of the NIH and the U.S. Public Health Service, was responding through its extramural program to the HIV infection epidemic that

presented a critical and devastating health problem in the United States. To complement NINR extramural HIV initiatives, the NINR initiated planning in 1988 for an HIV infection intramural program, This initial NINR intramural research effort was targeted to individuals infected with HIV who were already participating in studies conducted at the NIH Clinical Center by intramural investigators of the National Institute of Allergy and Infectious Diseases (NIAID). The aim was to conduct an organized program of research to minimize dysfunction and suffering due to physical or psychosocial sequelae of HIV infection. This early program, conducted out of the Office of the Director, NINR, provided the foundation for the Clinical Therapeutics Lab.

NINR's intramural research efforts then expanded to involve aging research. A second NINR intramural research program was developed in 1991 with the Honolulu Heart Program (HHP) and the Honolulu Aging Asian Study (HAAS) in Honolulu, Hawaii. The HHP is a longterm longitudinal epidemiologic study conducted by the National Heart, Lung, and Blood Institute (NHLBI) established in 1965. The HAAS is conducted by the National Institute on Aging (NIA). The NINR investigates burden and quality of life in caregivers of aging participants who have developed dementia in a longitudinal study.

NINR's intramural program was formally acknowledged by the creation of the Division of Intramural Research when the entire NINR organizational structure was revised in 1992 . The overall aims of the Division of Intramural Research (DIR) are to: (1) Develop and conduct programs of research relevant to nursing practice and health care; (2) Provide training for nurse scientists; and (3) Disseminate research findings for nursing practice. Designation of the Division of Intramural Research also resulted in the creation of two laboratories, the Clinical Therapeutics Laboratory (CTL) and the Laboratory for the Study of Human Responses to Health and Illness (HRHI). While each laboratory has a separate research program, both laboratories address the interaction of biological and behavioral aspects of health and disease as well as emphasize an interdisciplinary approach through partnerships with other disciplines and Institutes.

Review of the brief history of NINR's intramural program enables us to identify several challenges that exist for the future: (1) developing depth in the science and programs of research, while remaining responsive to new opportunities and disease problems: (2) continuing to expand intramural studies to environments other than the NIH Clinical Center; (3) assuring adequate resources to support the evolving scientific programs, such as space, personnel, and fiscal resources; and (4) utilizing research training opportunities to develop nurse scientists.

## Report of the Acting Director, NINR

Fiscal year 1994 marks continued challenge for development of the intramural program in the National Institute of Nursing Research (NINR). In 1993, the House Appropriations Committee mandated that NIH perform a critical evaluation of the quality, appropriateness, size, and cost of the intramural research program to enable informed decisions on the program directions, resource allocation, and intramural laboratory and clinical infrastructure. The evaluation was performed by an external evaluation committee over a nine month period.

A recommendation that has been implemented by NIH is creation of tenure track positions, requiring conduct of national searches to ensure quality and diversity of the intramural scientific laboratories. Also underway is a rigorous and equitable scientific evaluation of all ongoing and planned research activities; the review of NINR laboratories is scheduled for 1996. Recommendations to assure appropriate mentoring and education of fellows requires implementation of creative mechanisms to access, and benefit from, the expertise of senior scientists from multiple institutes.

In 1994, the NIH initiated several reinvention projects to streamline systems and operations. The NINR intramural research program provides many examples of shared resources; multiple investigations are conducted in collaboration with other institutes including, the National Institute of Allergy and Infectious Diseases (NIAID), the National Institute on Aging (NIA), and the National Heart, Lung, and Blood Institute (NHLBI). These multidisciplinary studies enable NINR investigators to access patients who are enrolled in other research protocols. Such access complements medical research and maximizes patients visits while decreasing patient travel burden. Sharing of resources also promotes cost effective research.

While the Division of Intramural Research, NINR has been unable to increase the number of scientists due to restrictions on personnel ceilings, the intramural staff continue to use innovative and creative means to assure continuity, quality and productivity of their research programs. The scientific staff are positive, enthusiastic and committed to excellence in science.

The National Advisory Council for Nursing Research continues to monitor the progress of the intramural program through annual reports and presentations. In addition, the acting scientific director monitors the program through regular meetings with investigators, and intensive evaluation of annual reports, manuscripts and scientific presentations. All evidence indicates that the program is productive, scientifically rigorous, and the programs of research will make significant contributions to nursing science. As Acting Director, NINR, I appreciate the opportunity to work closely with the intramural nurse research scientists to learn of their progress and future research directions and to explore ways to assure needed growth.

Suzanne S. Hurd, PhD

## Report of the Acting Scientific Director

FY 1994 has been a very productive year for the Division of Intramural Research (DIR) in view of major administrative changes within DIR as well as NINR and major fiscal restraints.

We are deeply saddened by the resignation of Dr. Ada Sue Hinshaw, Director of NINR and Acting Scientific Director. Her vision and support for this program and the institute has insured a firm foundation on which we can continue to build. Dr. Carolyn Murdaugh was appointed Acting Scientific Director, effective April 1, 1994.

In addition, Dr. Mary Ropka, Associate Director for Intramural Research and Acting Chief, Clinical Therapeutics Laboratory, resigned to return to academia. Dr. Ropka was responsible for initiating the first intramural studies to establish an HIV program of intramural research within NINR. Dr. Christine Grady has agreed to serve as Acting Chief of this laboratory. Other personnel changes include the resignation of Karen Hench, RN, MS, who accepted a position with HRSA. She has been replaced by Kathy Fedenko, RN, who comes from the National Cancer Institute.

A new position was established within DIR this past year, that of Clinical Director. The Clinical Director is responsible for ensuring the highest standards of performance of NINR personnel who coordinate and implement research protocols involving patients. Dr. Christine Grady was appointed as Acting Clinical Director effective April 1, 1994.

The research programs of the two laboratories are complementary: symptom management and patient outcomes in chronic illness. Therapeutic interventions need to be clearly defined, developed, and implemented to manage the distress of symptoms faced daily when living with a long term chronic illness. Since symptom management will not result in a cure, broader outcomes other than morbidity and mortality must be considered. Quality of life and functional status become significant indicators of the effectiveness of symptom management. Although the intramural research program is new and the numbers of studies are limited, each protocol is contributing to the knowledge base underlying human behavior and the interaction of human biology and behavior.

Descriptions of research protocols in the two laboratories are reviewed in the following sections of this report. It is noteworthy that a total of six studies are in progress and an additional three are completed and in the analysis phase.

Our challenge within the intramural program is to continue to meet our goals during this period of cost cutting and FTE reductions. Our attention will be focused on implementing our postdoctoral fellowship program and the visiting faculty program. We plan to attract qualified persons to participate in our research, share their expertise, and have the opportunity to experience the research environment here at the National Institutes of Health.

In summary, the staff have been extremely productive and are actively contributing to the NIH intramural research community.

Carolyn L. Murdaugh, PhD, RN

## Summary of the Acting Clinical Director

The first (Acting) Clinical Director was appointed to the NINR Division of Intramural Research April 1, 1994. The responsibility of the Clinical Director is to oversee all clinical studies that are conducted in the NIH Clinical Center to ensure adherence to the highest standards of research for monitoring and protecting the rights and welfare of participating subjects. The Clinical Director works closely with all investigators since current DIR studies are conducted collaboratively with other ICDs. The (Acting) Clinical Director has become an active member of the Medical Board in order to represent the needs and interests of the NINR intramural program.

Christine Grady, PhD, RN

## Clinical Therapeutics Laboratory
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## Summary of the Acting Laboratory Chief

The Clinical Therapeutics Laboratory (CTL) is responsible for a scientific program that studies the biophysiologic and behavioral basis for and the effectiveness of clinical therapeutics relevant to nursing practice and health care. Its scientific program includes, but is not limited to, the study of:

- Prevention, detection, and treatment of symptoms occurring as a result of diseases, health conditions, and injuries;
- Prevention, identification, and treatment of side effects occurring as a result of treatment of illness, health conditions, or injuries;
- Processes and factors that increase compliance with prevention, diagnostic, or therapeutic regimens and health-related recommendations; and
- Mechanisms and approaches that improve safe and effective administration of therapies.

Attention to both the biophysiologic and behavioral aspects of these crucial clinical challenges, approached from an interdisciplinary perspective, is inherent in the studies of the CTL. Efficient and economical research operations result by conducting NINR studies collaboratively with those of other Institutes, Centers, and Divisions (ICDs). Basic work related to definition, identification, measurement, or intervention are conducted in the intramural environment to serve as a foundation for future extramural initiatives.

### Scientific Advances

Symptom Management Research

Symptom management research programs that are currently conducted in the lab are targeted to two important groups, those with Human Immunodeficiency Virus (HIV) infection and the aged.

*HIV Symptom Management Program.* HIV symptom management research encompasses prevention, assessment, and treatment of symptoms resulting from HIV infection itself and its associated opportunistic infections (OIs) and opportunistic malignancies (OMs), as well as assessment, prevention, and management of side effects. HIV symptom management research provides a natural complement to traditional biomedical studies, such as those conducted at the NIH by other ICDs. HIV symptom management research includes assessment of the multiple dimensions of symptoms or side effects, development and testing of effective methods to manage HIV symptoms and side effects, and evaluation of the potential effects of symptom management interventions on traditional biomedical end points. All of the HIV symptom management studies benefit from close collaboration and resource sharing with other ICDs, especially NIAID and with the Clinical Center, especially the Nursing Department and the Nutrition Department.

One CTL study, initiated in July of 1990, has examined nutritional problems that occur during treatment for HIV infection, and explores the relationship between nutritional status and immune function. Increased understanding of the nature, extent, and timing of nutritional problems occurring during treatment for HIV infection will provide a foundation for future studies to target intensive nutritional assessment and treatment to those at greatest risk, in order to ultimately improve duration and quality of

survival. This study also investigates the longitudinal relationship of nutritional status and immune function. Extending current work, a nutrition intervention study, developed by NINR CTL investigators and Clinical Center Nutrition Department nutritionists to test the effects of medium chain triglyceride supplements on weight loss in HIV infection, began patient recruitment in 1994.

A second CTL symptom management study, begun in May 1991 in response to an observed clinical problem, describes, compares, and contrasts, over time, the biopsy characteristics; serum biochemical features; and condition-specific clinical performance, physical functioning, and health perceptions of patients who develop myopathy during prolonged antiretroviral therapy for HIV infection. The effectiveness of clinically-determined interventions, such as non-steroidal anti-inflammatory medications or changes in antiretroviral dose or drug will be evaluated. This study is also developing practical, clinically useful measures of physical function and condition-specific health status. CTL staff are also collaborating on a myopathy intervention study that builds on the earlier NINR observational study. This is conducted by NINDS investigators who were collaborators on the above NINR study. The effectiveness of L-carnitine in improving myopathy is being tested in a clinical trial that includes fatigue, physical function and health perceptions as outcome measures.

A third CTL HIV symptom management study, begun in April 1994, seeks to understand and describe the occurrence, extent, and impact of fatigue associated with HIV infection and associated with Interleukin-2 therapy for HIV infection. Subjective measures of fatigue and other symptoms as well as selected physiologic correlates will be measured at specified time points. Fatigue in subjects on IL-2 will be compared to non IL-2 control subjects or to themselves before the initiation of IL-2 therapy. Subject intake is underway.

*Aging Symptom Management.* Additional CTL studies examine symptom problems and management among the aging. These studies are currently conducted in Baltimore in a collaborative agreement with the National Institute on Aging. Incontinence is a common and costly health problem which demands nursing interventions to promote functional and psychological well-being. One CTL clinical trial tests the effectiveness of estrogen cream alone or in combination with behavioral interventions on incontinence status and urinary symptoms in post-menopausal women. Presence of urgency symptoms and patient report of quality of life are included as outcome measures. Optimization of the physiological environment to enhance behavioral interventions builds on the recommendations of recent Agency for Health Care and Policy Research (AHCPR) practice guidelines for incontinence that suggest combined therapies in the treatment of incontinence.

A second CTL aging symptom management study examines and compares the effectiveness of a prompted voiding nursing intervention on the level of dryness of nursing home residents. This study also seeks to identify physiological and functional factors associated with continence and incontinence.

In a third CTL study, NINR is collaborating on an NIA conducted investigation to examine the prevalence of post-operative complications in patients hospitalized for hip fractures and to evaluate the effect of rehabilitative nursing interventions on reducing deformity and restoring function in these patients.

**Significant Administrative Events**

The CTL was formally established early in 1992 by the creation of the Division of Intramural Research (DIR) in the then National Center for Nursing Research (NCNR). This change in organizational structure reflected the growth that had occurred since the NCNR was established in 1986. Formation of the CTL evolved from the initial intramural NINR program, which was begun in 1990 as a collaborative HIV research program conducted with the National Institute of Allergy and Infectious Diseases (NIAID). The first acting laboratory chief, Mary Ropka, PhD, RN, resigned in November 1993. In addition, one of the two research nurses, Karen Hench, resigned in May 1994 to take a position in HRSA. Since that time, a freeze has prevented hiring a permanent laboratory chief or additional investigators for the research program. The lack of senior investigators has prevented any new growth efforts within the laboratory. Dr. Christine Grady is currently serving as acting laboratory chief.

**Honors and Awards**

The following awards or honors were received by CTL staff during FY94:

Dr. Mary Palmer received the Second Annual USPHS Faye Abdellah Publication Award; and the AJN/MNA 18th Annual Writing Competition for her Continence Intervention Study: Knowledge and Beliefs in Long-Term Care. Dr. Palmer was also appointed to a tenure-track position as a Senior Staff Fellow.

Christine Grady completed her PhD in December 1993, and received a quality step increase in March 1994.

**Publications**

Anderson R, Grady C, Ropka M. A comparison of calculated energy requirements to measured resting energy expenditure in HIV-infected subjects. JANAC, in press.

Cupler E, Hench K, Jay C, Grady C, Danon M, Ropka M, Dalakas M. The natural history of Zidovudine (AZT)-induced mitochondrial myopathy (ZIMM), Neurology 1994;44(4 suppl 2):A132.

Grady C. The search for an AIDS vaccine: Ethical issues in the development and testing of a preventive HIV vaccine. Bloomington, IN: Indiana University Press, in press.

Grady C. HIV preventive vaccine research: Selected ethical issues, J Med Phil, in press.

Grady C, Vogel S. Laboratory methods for diagnostic monitoring HIV infection, JANAC 1993;4(2):11-22.

Hench K. National Institute of Nursing Research has arrived, PENS Reporter 1994;6(1):3.

Mutch A, Palmer MH, Marks J. The management of urinary incontinence in the long-term care patient. Md Med J 1994;43(2):149-153.

Ouslander JG, Palmer MH, German PS, Rovner B. Urinary incontinence in nursing home residents: Incidence, remission, and other associated factors, J Am Geriatr S 1994;41(10):1083-1089.

Palmer MH, Bennett RG, Marks J, McCormick KA, Engel BT. A prompted void and performance feedback intervention for urinary incontinence in a community nursing home. J LTC Admin, in press.

Palmer MH. A health promotion perspective of urinary continence, Nurs Outlook, in press.

**Related Presentations:**

Anderson R. Does nonfasting affect accuracy of body composition estimates obtained by bioelectrical impedance analysis (BIA) in HIV infected individuals? Poster presentation, NIH Research Festival, September 1993, Bethesda, MD

Anderson R. The NINR DIR experience. Oral presentation, Cancer Nurse Interns, NIH Clinical Center Nursing Department, October 1993, Bethesda, MD.

Grady C. The ethics of vaccine research. Invited lecture, AIDS Action Foundation, May 1994, Washington, DC.

Grady C. Ethical issues in the care of patients with HIV infection. Invited lecture, Georgetown University, March 1994, Washington, DC.

Grady C. The ethics of clinical research. Invited lecture, Uniformed Services University for the Health Sciences, February 1994, Bethesda, MD.

Grady C. Ethics and policy: Where we are and where we should be going. Plenary lecture, Association of Nurses in AIDS Care Annual Meeting, November 1993, Los Angeles, CA.

Grady C. Ethics: The ubiquitous challenge in patient care. NIH Clinical Center Grand Rounds, October 1993, Bethesda, MD.

Hench K. Nursing: Where do we belong in the world of research. Invited presentation, Virginia Student Nurses' Association Annual Convention, October 1993, Tysons' Corner, VA.

Sebring N, Ropka M, Anderson R. Consecutive day vs. alternate day collection of dietary records of HIV-infected individuals: Difference in completeness and reported subject preference. Second International Conference on Dietary Assessment Methods, Harvard School of Public Health, 1994, Boston, MA.

Christine Grady, PhD, RN

## Individual Project Reports

DEPARTMENT OF HEALTH AND HUMAN SERVICES - PUBLIC HEALTH SERVICE

# NOTICE OF INTRAMURAL RESEARCH PROJECT

PROJECT NUMBER

Z01 NR00001-05 CTL

PERIOD COVERED

October 1, 1993 to April 1, 1994

TITLE OF PROJECT *(80 characters or less. Title must fit on one line between the borders.)*

Nutritional Changes During HIV Treatment, Relation to Immune Function (90-I-156)

PRINCIPAL INVESTIGATOR *(List other professional personnel below the Principal Investigator.) (Name, title, laboratory, and institute affiliation)*

PI: Christine Grady, Acting Lab Chief, CTL/NINR
Others: Robin Anderson, Senior Research Nurse Specialist, CTL/NINR

COOPERATING UNITS *(if any)*

1. LIR/NIAID
2. Clinical Center Department of Nursing
3. Clinical Center Nutrition Department (N. Sebring, C. Hayes)

LAB/BRANCH

Clinical Therapeutics Laboratory (CTL)

SECTION

INSTITUTE AND LOCATION

NINR, NIH, Bethesda, MD 20892

| TOTAL STAFF YEARS: | PROFESSIONAL: | OTHER: |
|---|---|---|
| 1.0 | 1.0 | |

CHECK APPROPRIATE BOX(ES)

☒ (a) Human subjects ☐ (b) Human tissues ☐ (c) Neither
☐ (a1) Minors
☐ (a2) Interviews

SUMMARY OF WORK *(Use standard unreduced type. Do not exceed the space provided.)*

This study **aims** to: (1) Describe the type and extent of changes in nutritional status that develop across the spectrum of HIV infection during its treatment, including etiology of nutritional changes and adequacy of nutritional intake; changes in body composition by weight and other anthropometric measures and bioelectrical impedance analysis (BIA); biochemical parameters associated with nutritional status (cholesterol, triglycerides, vitamin B12, and folate); and (2) Explore the extent to which nutritional status serves as a cofactor to impaired immune function during HIV infection and its treatment.

The study employs an initial cross-sectional design, comparing different HIV disease severity groups determined by CD4 count and HIV treatment protocols, combined with a longitudinal design, involving follow-up of subjects at monthly intervals for the first eight months and then at decreasing intervals. Recruitment was completed in May 1992, including 120 subjects of whom 13 were females. Data collection was completed in April 1994. Data analysis is in progress.

Several substudies have been completed, including:
a) Validation of the absence of plasma TNF-alpha in this cohort.
b) Consequences of fasting versus not fasting on the accuracy of body composition estimate by BIA.
c) Comparison of calculated energy consumption to that measured by indirect calorimetry.
d) The effect of timing and pattern of collecting dietary information.

**Title:**
"A Combined Cross-Sectional and Longitudinal Study to Evaluate Nutritional Changes Occurring During Treatment for HIV Infection, and Their Relationship to Immune Function" (#90-I-156)

**Principal Investigator:**

| | |
|---|---|
| Christine Grady, PhD, RN | Acting Chief, CTL/NINR |

**Other Investigators:**

| | |
|---|---|
| Robin Anderson, MBA, RN | Senior Research Nurse Specialist/NINR |
| Bill Barrick, MS, RN | Head Nurse, 8th Floor Clinic/CCND |
| Judith Falloon, MD | Senior Investigator/NIAID |
| Karen Hench, MS, RN | Senior Research Nurse Specialist/NINR |
| H. Clifford Lane, MD | Clinical Director/NIAID |
| Joseph A. Kovacs, MD | Senior Investigator/CCMD |
| Julie Metcalfe | Biologist/NIAID |
| Michael A. Polis, MD, MPH | Senior Investigator/CCMD |
| Mary E. Ropka, PhD, RN | Guest Researcher/NINR |
| Nancy Sebring, MEd, RD | Clinical Nutritionist/CCDD |

**Major Aims:**
The purposes of this study are to:

1.0 Describe the type and extent of changes in nutritional status, both nutritional excesses and deficits, that develop across the spectrum of HIV infection during its treatment.
  1.1 Determine the etiology of nutritional changes by assessing the adequacy of nutritional intake in terms of calories and protein, altered digestion and absorption, metabolic changes, and extent of excessive nutrient loss.
  1.2 Evaluate body composition, including the composite measure of weight (WT); body fat by skinfold measures (SF) and bioelectrical impedance analysis (BIA); and lean body mass by midarm circumference (MAC) and bioelectrical impedance analysis (BIA).
  1.3 Examine biochemical parameters associated with nutritional status, including serum albumin, transferrin, and prealbumin.
  1.4 Examine biochemical parameters suggested to be associated with HIV infection, including cholesterol, triglycerides, vitamin B12, and folate.

2.0 Explore the extent to which nutritional status serves as a cofactor to impaired immune function during HIV infection and its treatment by determining the relationship of changes in nutritional status to changes in immune function. Measures reflecting immune function include T-cell subsets, immunoglobulins, and cachectin (TNF-$\alpha$).

3.0 SUBSTUDY #1 (planned at the time of the original NINR study): Evaluate the effect of collecting food record information on three consecutive days including one weekend day, as compared to three non-consecutive days including one weekend day, on variability of reported food intake and compliance with data collection.

**Methods Employed:**
Design: This study combines a cross-sectional, comparing different HIV disease severity groups, and a longitudinal design. HIV treatments are nested within NIAID drug protocols.

Sampling: The estimated sample size was 90 evaluable subjects, 30 from each of three HIV disease severity groups as determined by on-study CD4 counts. Recruitment was initiated in July of 1990 and completed by May 1992. 120 subjects (including 13 women) were systematically sampled from 3 HIV severity groups among subjects already participating in NIAID protocols: 31 from CD4 < 200 (0 females); 32 from CD4 200-500 (5 females); and 57 from CD4 > 500 (8 females). Data collection ended in April 1994.

Measurement: Study measures included:

- Anthropometric measures: body build, height, weight, skinfold measures, mid-arm circumference, bioelectrical impedance analysis
- Laboratory biochemical studies: serum albumin, serum transferrin, serum prealbumin, cholesterol, triglycerides, vitamin B12, folate
- Dietary intake: 24-hour record of dietary intake for 3 days the week prior to clinic visit.
- Immune function: T-cell subsets, blastogenesis, NK cell activity, immunoglobulins, TNF-$\alpha$
- HIV viral activity: p24 antigen, HIV culture, PCR
- Nutrition-related symptoms: anorexia, nausea/vomiting, oral lesions (stomatitis), dysphagia/odynophagia, diarrhea, fatigue, dyspnea, fever

**Major Findings and Report of Activities:**
Since the study began, five substudies have been conducted as follows:
SUBSTUDY #1: (planned at the time of the original NCNR study): Evaluate the effect of collecting food record information collected on three consecutive days including one weekend day, as compared to three non-consecutive days including one weekend day, on variability of reported food intake and compliance with data collection. Data analysis is currently underway. Abstract submitted to Second International Conference on Dietary Assessment Methods.

(12/91 - 1/92) SUBSTUDY #2 AND SUBSTUDY #3: (initiated in response to ongoing study findings or observations): To evaluate the absence of anticipated measurable levels of TNF-$\alpha$, two substudies were conducted:

- 16 plasma samples from normal controls were spiked with varying concentrations of recombinant TNF-$\alpha$ and sent to our contract laboratory (SKB) for standard bioassay. TNF-$\alpha$ was measurable in the spiked samples;
- 10 plasma samples were examined in collaboration with Dr. Guido Poli (LIR/NIAID) for TNF-$\alpha$ levels by conventional bioassay as well as by incubation with chronically infected cell lines sensitive to TNF-$\alpha$ induction. No detectable levels of TNF-$\alpha$ were seen by either of the two methods.

These substudies were presented at the International AIDS meeting in Berlin in June 1993. Manuscript has been submitted to *Research in Nursing and Health.*

(6/92 - 9/92) SUBSTUDY #4: To evaluate the consequences of the observed inability of subjects to remain NPO prior to Bioelectrical Impedance Analysis (BIA), the effect of recent food intake on BIA estimates of body composition, specifically related to fluid and/or electrolyte balance, was investigated. BIA was obtained in 20 subjects participating in the Nutrition Study with diverse body builds: (1) upon arriving to clinic, in a fasting state; (2) one hour following consumption of a standardized breakfast; and (3) three hours following consumption of the standardized breakfast. This substudy was carried out in the Clinical Center 8th floor HIV Clinic in collaboration with Celia Hayes and Nancy Sebring, Clinical

Center Nutrition Research Specialists. Data analysis is completed. This substudy was presented at the International AIDS meeting in Berlin in June 1993. Poster presented at NIH Research Festival in September 1993. Manuscript submitted to *Journal of American Dietetic Association.*

(9/92) SUBSTUDY #5: To compare energy requirements, estimated for clinical care by standard formulas, to measured energy requirements obtained by indirect calorimetry, 20 subjects were studied (7 from CD4 < 200 group, 6 from CD4 200-500, 7 from CD4 > 500 group) using the Sensor Medics Delta Trac Metabolic Monitoring System. The patients underwent indirect calorimetry after resting in a recliner for 30 minutes. Each patient had been instructed to fast (except for water and medications) since midnight the night before. Expired air was drawn in through a hood and sent through the Delta Trac System for analysis of $CO_2$ production, oxygen and breathing pattern. This substudy was carried out in the 8th Floor HIV Clinic, utilizing a metabolic cart loaned by the Clinical Center's Department of Critical Care Medicine. Data analysis is completed. This substudy was presented at the US Public Health Service Professional Association Meeting in Scottsdale, Arizona in May 1993. Manuscript submitted to *Journal of Nurses in AIDS Care.*

Data collection for the cross-sectional phase is completed with analysis well underway. Data collection for the longitudinal phase was completed in April 1994. Analysis is underway.

**Significance of Research for Biomedical Research & the Program of the NINR:**
Increased understanding of the nature, extent, and timing of nutritional problems occurring in individuals during different treatments for HIV infection provides a foundation for improved ability to target intensive nutritional assessment and treatment to those at greatest risk in order to ultimately improve duration and quality of survival.

**Proposed Future Course:**
Analysis of substudies is complete. Cross-sectional and longitudinal analyses underway.

**Publications:**
Anderson R, Grady C, Ropka M. A comparison of calculated energy requirements to measured resting energy expenditure in HIV-infected subjects. JANAC, in press.

**Related Presentations:**
Sebring N, Ropka M, Anderson R. Consecutive day vs. alternate day collection of dietary records of HIV-infected individuals: Difference in completeness and reported subject preference. Second International Conference on Dietary Assessment Methods, Harvard School of Public Health, 1994.

DEPARTMENT OF HEALTH AND HUMAN SERVICES - PUBLIC HEALTH SERVICE

# NOTICE OF INTRAMURAL RESEARCH PROJECT

PROJECT NUMBER

Z01 NR00002-04 CTL

PERIOD COVERED

October 1, 1993 to April 1, 1994

TITLE OF PROJECT *(80 characters or less. Title must fit on one line between the borders.)*

Myopathy During Prolonged Antiretroviral Therapy for HIV Infection (91-I-142)

PRINCIPAL INVESTIGATOR *(List other professional personnel below the Principal Investigator.) (Name, title, laboratory, and institute affiliation)*

PI: Christine Grady, Acting Lab Chief, CTL/NINR
Others: Karen Hench, Senior Research Nurse Specialist, CTL/NINR

COOPERATING UNITS *(if any)*

1. LIR/NIAID
2. MN/NINDS
3. Clinical Center Department of Nursing

LAB/BRANCH

Clinical Therapeutics Laboratory (CTL)

SECTION

INSTITUTE AND LOCATION

NINR, NIH, Bethesda, MD 20892

| TOTAL STAFF YEARS: | PROFESSIONAL: | OTHER: |
|---|---|---|
| 1.0 | 1.0 | |

CHECK APPROPRIATE BOX(ES)

☒ (a) Human subjects ☐ (b) Human tissues ☐ (c) Neither
☐ (a1) Minors
☐ (a2) Interviews

SUMMARY OF WORK *(Use standard unreduced type. Do not exceed the space provided.)*

The two major aims of this study are to: (1) Describe and compare the histopathologic characteristics; serum biochemical features; and condition-specific clinical performance, functional status, and health perceptions of patients who have developed myopathy during antiretroviral therapy for HIV infection; and (2) Contrast the changes that occur over time, and following clinically-determined interventions such as altered antiretroviral doses, steroid administration, or nonsteroidal anti-inflammatory medications. In addition, it explores differences in responses to general and newly developed condition-specific items of an adapted version of the Short Form of the Medical Outcomes Study questionnaire (SF-36 MOS) in order to determine health perceptions and health status as judged by the patient.

A concurrent, prospective case series design is used which involves longitudinal measurement of most study variables at monthly intervals for the original six month duration of the study, with the exception of muscle biopsy which is performed at the beginning and then repeated once. One additional evaluation at around 12 months has been added. 25 evaluable subjects have been recruited, involving consecutive patients participating in NIAID HIV treatment trials who meet the study criteria, and followed for six months. Data collection is completed. Data analysis is underway.

**Title:**
"Histologic, Serologic, and Clinical Characteristics of Myopathy Occurring During Prolonged Antiretroviral Therapy for HIV Infection" (#91-I-142)

**Principal Investigator:**

| | |
|---|---|
| Christine Grady, PhD, RN | Acting Lab Chief, CTL/NINR |

**Other Investigators:**

| | |
|---|---|
| Marinos Dalakas, MD | Senior Investigator/NINDS |
| Karen Hench, MS, RN | Senior Research Nurse Specialist/NINR |
| Judith Falloon, MD | Senior Investigator/NIAID |
| Ed Cupler, MD | Clinical Associate/NINDS |
| Mary E. Ropka, PhD, RN | Guest Researcher/NINR |

**Major Aims:**
The purposes of this study are to:

1.0 Describe and compare the histopathologic characteristics; serum biochemical features; and condition-specific clinical performance, functional status, and health perceptions of patients who have developed myopathy during antiretroviral therapy for HIV infection.

2.0 Contrast changes in histopathologic characteristics; serum biochemical features; and myopathy-related clinical performance, functional status, and health perceptions that occur over time, and following clinically-determined interventions such as altered antiretroviral doses, steroid administration, or nonsteroidal anti-inflammatory medications.

3.0 SUBSTUDY #1: Explore differences in responses to general and newly developed condition-specific items of an adapted version of the Short Form Medical Outcomes Study (SF-36 MOS) to determine health perceptions and health status.

**Methods Employed:**
Design: This observational study is a concurrent, prospective case series involving longitudinal measurement of most study variables at monthly intervals for the six-month duration of the study, with the exception of muscle biopsy which will be performed at the beginning and then repeated once. An additional 12-month evaluation is obtained when possible.

Sampling: Consecutive eligible NIAID study subjects were recruited for participation in this NINR protocol if they met the eligibility criteria which were as follows: enrolled in an NIAID protocol; recent treatment with zidovudine, ddI, ddC or interferon-alpha for a minimum of four months with the last dose within 7 days prior to enrollment; presence of myopathy established according to selected clinical criteria that involve specific physical examination, muscle weakness history, or laboratory findings in order to operationally define the expert clinical judgement usually required in diagnosing myopathy. Detailed major and minor entry criteria are specified. Exclusion criteria included: illicit drugs, neurologic diseases or endocrine conditions that would complicate evaluation of the study variables; exposure to known myotoxins; family history of muscle diseases; severe malnutrition; eosinophilia greater than 20% on two sequential determinations at least one month apart.

Measurement: Study measures included:

- Complete History and Physical Examination by a consulting neurologist prior to study entry.
- Screening ANA, Rheumatoid factor, thyroid function, and HTLV-1 studies performed at study entry to rule out known competing causes of rheumatologic, endocrine, or viral myopathies.
- Laboratory studies: performed at baseline and monthly, consist of CBC; differential; Acute Care, Hepatic, and Mineral Panels; CK; LDH; aldolase; lactate; and urinalysis. These are repeated again at month 12.
- Clinical performance (manual muscle strength testing); functional status assessment (timed muscle activities, functional grade); and health status assessment (questionnaire) are obtained at baseline and monthly intervals and repeated again at month 12.
- Outpatient muscle biopsy of a proximal muscle is performed under local anesthesia at baseline and repeated once at month 4-6.

**Major Findings and Report of Activities:**
The study was initially designed to evaluate 15 patients for 6 months. In December 1991, an amendment was approved to increase the number of patients to 25; include each patient's immune profile as a study parameter when the 2 muscle biopsies are obtained; and expand the 15-item questionnaire to include condition-specific items as well as general health status items in order to distinguish health perceptions/health status in general from those that are condition-specific or related to myopathy. In October 1992, the request was approved to enroll up to a maximum of 10 additional subjects in order to have a total of 25 evaluable subjects who have completed all study parameters; and add one additional study visit twelve months after beginning the study.

Early findings or observations include: 1) Prolonged low dose, as well as high dose, AZT therapy may precede mitochondrial myopathy; 2) Discontinuation of AZT may improve mitochondrial myopathy and functional status, although in some instances myopathy remains stable or improves while continuing AZT; and 3) Clinical characteristics and muscle histology do not always correlate. For example, some patients who perform well clinically have severe mitochondrial myopathy on biopsy.

**Significance of Research for Biomedical Research & the Program of the NINR:**
Greater awareness of the natural history of antiretroviral-associated myopathy as well as the response to clinically determined interventions for antiretroviral-associated myopathy will contribute to improved clinical management of this condition, which is occurring more commonly as HIV infected individuals receive long-term antiretroviral therapy. This study will also provide information regarding how closely the clinical picture of this condition correlates with histologic and biochemical changes.

**Proposed Future Course:**
Data collection is complete. Analysis of data for the first six months of observations is underway.

**Publications:**
Cupler E, Hench K, Jay C, Grady C, Danon M, Ropka M, Dalakas M. The natural history of Zidovudine (AZT)-induced mitochondrial myopathy (ZIMM), Neurology 1994;44:A132.

DEPARTMENT OF HEALTH AND HUMAN SERVICES - PUBLIC HEALTH SERVICE

# NOTICE OF INTRAMURAL RESEARCH PROJECT

PROJECT NUMBER

Z01 NR00004-02 CTL

PERIOD COVERED

October 1, 1993 to September 30, 1994

TITLE OF PROJECT *(80 characters or less. Title must fit on one line between the borders.)*

Urinary Continence Status and Treatment of Incontinence in Nursing Home Residents

PRINCIPAL INVESTIGATOR *(List other professional personnel below the Principal Investigator.) (Name, title, laboratory, and institute affiliation)*

PI: Mary H. Palmer, Senior Staff Fellow, CTL, NINR

COOPERATING UNITS *(if any)*

National Institute on Aging, GRC, NIH, Baltimore, MD (B. Engel); The Johns Hopkins Geriatric Center, Baltimore, MD (A. Langford, A. Warwick, S. Denman)

LAB/BRANCH

Clinical Therapeutics Laboratory, NINR

SECTION

INSTITUTE AND LOCATION

NINR, NIH, Gerontology Research Center, Baltimore, MD 21224

| TOTAL STAFF YEARS: | PROFESSIONAL: | OTHER: |
|---|---|---|
| | 0.2 | |

CHECK APPROPRIATE BOX(ES)

☒ (a) Human subjects ☐ (b) Human tissues ☐ (c) Neither

☐ (a1) Minors

☐ (a2) Interviews

SUMMARY OF WORK *(Use standard unreduced type. Do not exceed the space provided.)*

Urinary incontinence is prevalent in nursing homes. This project was designed to test the effectiveness of staff performance feedback in conjunction with behavioral treatment of incontinence.

Objectives:
To examine urinary continence status and to identify physiological and functional factors associated with continence and incontinence in elderly nursing home residents and to prospectively examine and compare the level of dryness of residents on a prompted voiding intervention to their baseline measurement.

Major Findings:
To date 35 subjects have been recruited into the study. Data entry and preliminary analyses are underway.

Publications:

Ouslander JG, Palmer MH, German PS, Rovner B. Urinary incontinence in nursing home residents: Incidence, remission, and other associated factors, J Am Geriatr S 1994; 41(10): 1083-1089.

Palmer MH, Bennett RG, Marks J, McCormick KA, Engel BT. A prompted void and performance feedback intervention for urinary incontinence in a community nursing home. J LTC Admin, in press.

Mutch A, Palmer MH, Marks J. The management of urinary incontinence in the long-term care patient. Md Med J 1994; 43(2): 149-153.

**Title:**
"Prospective Study of Urinary Continence Status and Treatment of Incontinence in Nursing Home Residents" (FSK-IRB90-07-27-01)

**Principal Investigator:**

| | |
|---|---|
| Mary H. Palmer, PhD, RN, C (15% effort) | Senior Staff Fellow/NINR |

**Other Investigators:**

| | |
|---|---|
| Bernard T. Engel, PhD | Chief, Laboratory of Behavioral Sciences/NIA |
| Susan Denman, MD | Medical Director/Johns Hopkins Geriatric Center |
| Anita Langford, MS, RN | Administrator/Johns Hopkins Geriatric Center |
| Anne Warwick, MS, RN | Director of Nursing/Johns Hopkins Geriatric Center |

**Major Aims:**
The purposes of this study are to:

1.0 Examine urinary continence status and to identify physiological and functional factors associated with continence and incontinence in elderly nursing home residents.

2.0 Prospectively examine and compare the level of dryness of incontinent residents on a prompted voiding intervention to their baseline measures.

**Methods Employed:**
Design:

Prospective longitudinal descriptive study investigating patterns of continence in newly admitted residents or residents admitted within previous 12 months to participation in study.

Cross sectional, comparing physiological and functional parameters with continence status.

Estimated Sample Size:

100 eligible subjects total.

Sampling:

Convenience sampling: Inclusion criteria: aged 65 years, admitted to the facility from January 1992 to present.

Time frame:

Institutional Review Board (FSK-IRB) approval, June 1992. Proposed time frame completion of the study, December 1994.

Measurement:

Demographic measures: age, marital status, previous living arrangements, gender.

Functional measures: ADL status at admission to the facility and administration to the study from Minimum Data Set, Folstein MiniMental Examination Status at admission to the facility and at admission to the study.

Laboratory biochemical studies: urinalysis, urine culture and sensitivity, urine pH, admission serum glucose, Na, K, creatinine, Cl, WBC, RBC, hemoglobin, hemocrit.

Fluid related: oral intake and urinary output, use of diuretics, urine specific gravity

Urinary eliminative status measures: frequency of bowel and bladder incontinence, ability to use toilet, presence of capacity, post void residual.

Medication use: current medications.

**Major Findings and Report of Activities:**
Accrual:

- Subject recruitment initiated September 1992.
- First subject recruited November 1992.
- 35 subjects have been recruited, 25 women, 10 men.
- Incontinent = 21; Continent = 14.
- 2 have died, 4 have been discharged from nursing home, 3 have withdrawn due to inability to cooperate with intervention.
- 21 have completed 6 month intervention/observation, 8 continent, 14 incontinent.
- Refusal rate approximately 50%, mainly due to severe dementia.
- Staff surveys regarding effectiveness of prompted voiding completed N =64, 73% response rate.

Early findings/observations:

- Higher prevalence of bacteriuria in incontinent subjects than continent subjects (14/21 vs. 3/14).
- Data entry is underway.
- Data regarding the subjets' dryness level and staff performance level provided to the head nurses on a weekly basis.

**Addendum:**
Residents aged 60 to 64 years are eligible to participate, FSK-IRB approval, March 1993. Staff survey regarding perceptions of the effectiveness of the intervention, April 1994.

**Significance of Research for Biomedical Research & the Program of the NINR:**
Incontinence is a prevalent and costly health problem. Effective nursing intervention is necessary to promote functional and psychological well-being.

**Proposed Future Course:**
Continent subjects are followed for 6 months after entry into the study, via medical records review to detect incident cases and incontinent subjects will participate in a 6 month course of prompted voiding intervention provided by the nursing staff. Supervisory nursing personnel will provide performance and patient status feedback to the nursing staff.

**Publications:**
Ouslander JG, Palmer MH, German PS, Rovner B. Urinary incontinence in nursing home residents: Incidence, remission, and other associated factors, J Am Geriatr S 1994; 41(10): 1083-1089.

Palmer MH, Bennett RG, Marks J, McCormick KA, Engel BT. A prompted void and performance feedback intervention for urinary incontinence in a community nursing home, J LTC Admin, in press.

Mutch A, Palmer MH, Marks J. The management of urinary incontinence in the long-term care patient. Md Med J 1994; 43(2): 149-153.

**Collaboration:**
Carried out at the Johns Hopkins Geriatrics Center (JHGC) through collaboration with NIA Intramural Program scientists at the Gerontology Research Center and the medical and nursing staff of the JHGC.

**Comments:**
Study developed by NINR based on identification of clinically relevant scientific opportunities and comprehensive review of the literature.

This project is also being reported by the National Institute on Aging as project number Z01 AG00072-07 LBS.

DEPARTMENT OF HEALTH AND HUMAN SERVICES - PUBLIC HEALTH SERVICE

# NOTICE OF INTRAMURAL RESEARCH PROJECT

PROJECT NUMBER

Z01 NR00006-02 CTL

PERIOD COVERED

October 1, 1993 to September 30, 1994

TITLE OF PROJECT *(80 characters or less. Title must fit on one line between the borders.)*

Role of Estrogen on Urinary Incontinence and Symptoms in Post-menopausal Women

PRINCIPAL INVESTIGATOR *(List other professional personnel below the Principal Investigator.) (Name, title, laboratory, and institute affiliation)*

PI: Mary H. Palmer, Staff Fellow, CTL, NINR

COOPERATING UNITS *(if any)*

The Johns Hopkins Medical Systems (D. Foster); Francis Scott Key Medical Center, Baltimore, MD (J. Marks).

LAB/BRANCH

Clinical Therapeutics Laboratory, NINR

SECTION

INSTITUTE AND LOCATION

NINR, NIH, Gerontology Research Center, Baltimore, MD 21224

| TOTAL STAFF YEARS: | PROFESSIONAL: | OTHER: |
|---|---|---|
| | 0.2 | |

CHECK APPROPRIATE BOX(ES)

☒ (a) Human subjects ☐ (b) Human tissues ☐ (c) Neither

☐ (a1) Minors

☐ (a2) Interviews

SUMMARY OF WORK *(Use standard unreduced type. Do not exceed the space provided.)*

Incontinence and urinary symptoms of frequency and urgency are prevalent in post-menopausal women. This project is designed to evaluate the effectiveness of topical estrogen in the behavioral treatment of urinary symptoms and incontinence.

Objectives:

To investigate the relationship among estrogen use, pelvic muscle exercise, and urinary symptoms in post-menopausal women and to investigate the effects of estrogen and pelvic muscle exercise on the frequency of incontinent episodes in post-menopausal women.

Major Findings:

To date 10 subjects have been recruited. Data collection is underway.

Publications:

Palmer MH. A health promotion perspective of urinary continence, Nurs Outlook, in press.

**Title:**
"Role of Estrogen and Pelvic Muscle Exercise on Urinary Incontinence and Urinary Symptoms in Post-Menopausal Women" (NCN-93-02-09-01)

**Principal Investigator:**
Mary H. Palmer, PhD, RN, C (35% effort) Staff Fellow/NINR

**Other Investigators:**
David Foster, MD — Director, Division of General Gynecology and Obstetrics/Johns Hopkins Medical Systems (JHUMS)

Jane Marks, RN, MS — Continence Nurse, Beacham Ambulatory Care Center/Francis Scott Key Medical Center (FSKMC)

**Major Aims:**
The purposes of this study are to investigate the:
1.0 Relationship among estrogen use, pelvic muscle exercise, and urinary symptoms in post-menopausal women.
2.0 Effects of estrogen and pelvic muscle exercise on the frequency of incontinent episodes in post-menopausal women.

**Methods Employed:**
Design:
Cross-sectional double blinded study with three intervention and one control groups.
Estimated Sample Size:
60 community dwelling women aged 60 years and over.
Sampling:
Random assignment to 4 groups.
Time Frame:
FSK-IRB approval, March 1993. Study began April 1993. Proposed time for completion for the study, April 1995.
Measurement:
Demograhic measures: age, marital status, living arrangements.
Medical diagnoses and conditions.
Geritourinary: parity history, pelvic muscle strength, pelvic sensation, vaginal atrophy index, cytologic maturational indices, bulbocavernosus reflex, frequency of incontinence and controlled voiding, ability to initiate voiding, bladder capacity, post void residual, presence of urgency symptoms.
Laboratory biochemical studies: uninalysis, urine culture, urine pH, serum electrolytes, T3, T4, enzymes, serum estrone and estradiol.
Fluid related: voided volumes, perineal pad weights, oral intake.
Medication use: current medications.

**Major Findings and Report of Activities:**
- Subject recruitment began July 1993.
- First subject recruited July 1993.

- Advertisements have been placed in local newspapers for recruitment. Posters and flyers have been distributed to gynecologists and urologists at FSKMC and Johns Hopkins Medical System.
- Accrual: 10 subjects have been recruited to date.
- Refusal rate approximately 50% from physician referral.

**Addendum:**
Addendum to FSK-IRB to delete myocardial infarction, ischemic heart disease, transient ischemic attacks, May 1994.

**Significance of Research for Biomedical Research & the Program of the NINR:**
AHCPR recommends the investigation of combined therapies in the treatment of urinary incontinence. Optimization of the physiological environment to enhance behavioral interventions warrants nursing investigation.

**Proposed Future Course:**
Women are followed for 10 weeks through 6 clinic visits. Women who receive the estrogen cream will be offered a three month follow-up clinic visit with Dr. Foster. Women who did not receive pelvic muscle exercise biofeedback training sessions will be offered three free sessions after they complete the study.

**Publications:**
Palmer MH. A health promotion perspective of urinary continence, Nurs Outlook, in press.

**Collaboration:**
Carried out at the Beacham Ambulatory Care Center, the Francis Scott Key Medical Center, in collaboration with the Johns Hopkins University School of Medicine Division of Geriatric Medicine.

**Comments:**
Study developed by NINR/JHU based on identification of clinically relevant scientific opportunities and comprehensive review of the literature.

DEPARTMENT OF HEALTH AND HUMAN SERVICES - PUBLIC HEALTH SERVICE

# NOTICE OF INTRAMURAL RESEARCH PROJECT

PROJECT NUMBER

Z01 NR00009-01

PERIOD COVERED

March 1, 1994 to September 30, 1994

TITLE OF PROJECT *(80 characters or less. Title must fit on one line between the borders.)*

Fatigue Associated with Interleukin-2 Therapy for HIV Infection (94-I-0155)

PRINCIPAL INVESTIGATOR *(List other professional personnel below the Principal Investigator.) (Name, title, laboratory, and institute affiliation)*

PI: Christine Grady, Acting Lab Chief, CTL/NINR
Others: Robin Anderson, Senior Research Nurse, CTL/NINR

COOPERATING UNITS *(if any)*

NIAID

LAB/BRANCH

Clinical Therapeutics Laboratory (CTL)

SECTION

INSTITUTE AND LOCATION

NINR, NIH, Bethesda, MD 20892

| TOTAL STAFF YEARS: | PROFESSIONAL: | OTHER: |
|---|---|---|
| | | |

CHECK APPROPRIATE BOX(ES)

☒ (a) Human subjects ☐ (b) Human tissues ☐ (c) Neither
☐ (a1) Minors
☐ (a2) Interviews

SUMMARY OF WORK *(Use standard unreduced type. Do not exceed the space provided.)*

The aims of this study are to: 1) Identify and describe the frequency, severity, duration, and impact of fatigue reported by HIV-infected individuals during and between cycles of investigational IL-2 therapy; 2) Evaluate selected physiologic and psychosocial correlates of fatigue in HIV-infected subjects receiving IL-2 therapy; and 3) Identify self-care strategies used by HIV-infected persons to minimize fatigue.

Both concurrent and longitudinal measurement of study variables at specified time points will be done. Subject recruitment is underway, and 33 of 50 subjects have been enrolled since April 1994.

**Title:**
"Fatigue Associated with Interleukin-2 Therapy for HIV Infection" (94-I-0155)

**Principal Investigator:**
Christine Grady, PhD, RN Acting Chief, CTL/NINR

**Other Investigators:**
Robin Anderson, RN, MBA Senior Research Nurse Specialist, CTL/NINR
Mary E. Ropka, PhD, RN Guest Researcher, NINR

**Major Aims:**
The purposes of this study are to:

1.0 Identify and describe the frequency, severity, duration, and impact of fatigue reported by HIV-infected individuals during administration of investigational IL-2 therapy and in between cycles of IL-2.
- Describe the occurrence and extent of fatigue within the complex constellation of symptoms experienced by HIV-infected persons receiving IL-2 therapy.

2.0 Evaluate selected physiologic and psychosocial correlates of fatigue in HIV-infected subjects receiving IL-2 therapy.

3.0 Identify self-care strategies used by HIV-infected persons to minimize fatigue.

**Methods Employed:**
Design: This study is descriptive, incorporating both concurrent and prospective longitudinal measurement of study variables. Designed as a companion to clinical trials evaluating IL-2 therapy, subjects randomized to no IL-2 will be used as controls. Estimated sample is 50 evaluable subjects. Eligible subjects are participants of NIAID studies evaluating IL-2 as therapy.

Measurement: Subjective and objective measures of fatigue and related phenomena will be obtained at specified time points. Study measures include:

a. Subjective self-report measures, including:
   1. Modified Piper Fatigue Scale to measure extent and patterns of fatigue;
   2. Memorial Symptom Assessment Scale to measure severity and distress of various symptoms;
   3. Duke Activity Status Index to measure physical ability and activity;
   4. Beck Depression Inventory to measure the presence and severity of depression;
   5. Sleep survey to measure the quantity and quality of sleep.

b. Physiologic measures, including:
   - CBC with differential
   - Acute care and hepatic panels
   - Thyroid function tests
   - Serum cortisol levels
   - Cytokine levels (specifically TNF-$\alpha$, IL-1, IL-6, and IFN-$\Gamma$).

**Major Findings and Report of Activities:**
Study was approved by the NIAID IRB in March 1994. A pilot study was conducted to evaluate the questionnaires, and revisions made accordingly. Active recruitment is ongoing, and to date, 33 subjects have been enrolled in the study.

**Significance of Research for Biomedical Research & the Program of the NINR:**
Increased understanding of the occurrence, extent, and impact of fatigue as well as of concomitant symptoms and self-care measures is necessary in order to design and test interventions which could prevent or alleviate fatigue. Fatigue is a common complaint in HIV infection. IL-2 therapy, which if effective in HIV infection will likely be administered chronically, significantly exacerbates the fatigue experienced by HIV-infected subjects. Learning to prevent or control fatigue could favorably impact patients quality of life and compliance with therapy.

**Proposed Future Course:**
Continued subject recruitment and data collection.

**Publications:**
None

**Related Presentations:**
None.

## Laboratory for the Study of Human Responses to Health and Illness
## Table of Contents

## Summary of the Laboratory Chief

### Summary of Individual Project Reports

Two studies are underway to examine quality of life as an outcome in chronic illness; one in caregivers of persons with Alzheimer's Disease, and one in persons with HIV Disease. In addition, a third study is examining functional performance as a predictor of quality of life. All three studies are focusing on differentiating predictors of quality of life from the measure of quality of life as a significant outcome variable in chronic illness.

Project Number 1: Caregiving, Health, and Quality of Life if Elderly Caregivers and Potential Caregivers of Persons with Dementia

One HRHI study is examining the predictors of caregiver burden, health status and quality of life in caregivers of elderly men with dementia. The longitudinal study is being conducted in Honolulu in collaboration with NHLBI and NIA. The study addresses the major weaknesses in other caregiver studies to date by testing a theoretical model, including a control group, obtaining information on the demented elder as well as the caregiver, incorporating reliable and valid instruments, and following subjects for a minimum of two years. Data collection began in March 1991 and will continue until 1995.

Project Number 2: A Study of Quality of Life in Persons with HIV Disease

A second HRHI study is exploring the predictors of quality of life in persons with HIV Disease. The study has obtained qualitative data using both grounded theory and focus group methodology. Findings form the base for the longitudinal design, in progress, to describe changes in predictors of quality of life over the course of the disease and its treatments.

Project Number 3: Isolating Functional Performance in Chronic Illness

A third study is investigating functional performance, an element of functional status. The concept of functional performance will be isolated from confounding variables and will be measured in a three phased study, which includes qualitative and quantitative methods. This study will assist in clarifying the confusion and current interchange of functional status with quality of life.

### Relationship of Studies to Goals of Laboratory

The HRHI Laboratory conducts a program of research which focuses on biophysiologic and behavioral aspects of human responses that occur in health and illness, including biophysiologic and behavioral processes that influence health related quality of life outcomes in illness or disability; processes and environments that influence health, health promoting and health-maintaining behaviors; interventions that reduce the risk of illness as well as minimize impairments or complications that result from disease, health conditions, or injuries; and interventions that facilitate adaptation to illness or disability.

All three studies in the HRHI Laboratory focus on biophysiologic and behavioral processes that influence

health-related end-points. The quality of life concept is a major variable which is incorporated in all studies in the laboratory. Investigators in the HRHI Laboratory are exploring the construct to clarify the definition and dimensions of quality of life needed to facilitate comparison of findings across studies and populations. For example, differences and similarities in the quality of life and functional status concepts will be made explicit. Additional attention is paid to the reliability, validity, sensitivity, and scoring issues of instruments used to measure the dimensions of quality of life and functional status and other endpoints of nursing interventions.

In the above studies, causal models are undergoing testing to identify the significant predictors of quality of life in persons with a chronic illness or caregivers of persons with a chronic illness. The concepts and measures are similar in the quality of life studies to enable the investigators to compare findings across projects. Causal models need to be formulated and tested prior to intervention studies to assist investigators in determining the significant predictors to target in intervention studies.

As the quality of life and functional status constructs are clarified and significant predictors of these constructs are identified and described, the focus of the laboratory will progress to developing and testing interventions to improve the quality of life of persons living with chronic illnesses as well as their caregivers. The specific chronic illnesses are HIV Disease, Dementia, and Chronic Obstructive Pulmonary Disease.

**Administrative Changes**

No administrative changes occurred within the laboratory in FY94. However, the HRHI laboratory chief was appointed Acting Scientific Director effective April 1, 1994. She had been serving as Associate Director for Intramural Research since November 1993. She continues to serve as HRHI laboratory chief as well.

**Program Plans**

A major objective of the laboratory is to incorporate a biobehavioral approach in developing and testing theory to guide nursing interventions.

First, the program plan calls for all proposals to be designed to incorporate the interaction of biological and behavioral factors in health promotion/risk reduction and in chronic illness. Multiple measures of behavioral oriented concepts will ensure that valid and sensitive data are obtained. Both behavioral measures as well as physiologic measures are used to measure the concepts of interest. The HRHI Laboratory is an ideal site in which to test protocols which measure biobehavioral processes and outcomes because of access to study populations at NIH. All patients at NIH are enrolled in research protocols which include biological measures. Collegial research efforts insure rigorous NINR investigations without redundant measures and costs.

Theory building strategies are undertaken to develop theory to guide patient care decisions in nursing practice, just as physiological theories guide both nursing and medical practice. In the HRHI laboratory nursing theories that have been previously developed and tested by the investigators, as well as new

theories generated from qualitative investigations will provide the basis for developing and testing nursing interventions.

Issues related to the measurement of theoretical constructs is another focus of studies conducted within the laboratory. Strict attention is given to reliability, validity, sensitivity, specificity and generalizability of measures across studies in the laboratory. Well developed and tested instruments will be shared with scientists in the both the intramural and extramural research community so common instruments with sound theoretical and psychometric properties can be used in studies which measure the biobehavioral outcomes of interventions.

Partnerships with other disciplines and institutes is fundamental to successful research efforts undertaken by the HRHI laboratory at NIH. Multidiscliplinary multi-institute cooperation ensures appropriate expertise, decrease subject burden, and reduce study costs. In addition, the collegial exchange enhances creativity, improve communication, and ensures high standards of research.

Currently, quality of life and functional status are the major thematic areas under investigation in the laboratory. The constructs are under study in both patients with a chronic illness as well as caregivers of persons with a chronic illness.

**Future Program Plans**

Since no new FTE expansion is available in the near future, the growth of the laboratory will be limited. Scientific rigor will continue to be emphasized to maintain excellence in the small, yet significant group of studies in progress. No new areas of expansion will be undertaken until additional investigators are obtained, however collaboration among the studies in the two laboratories will be encouraged.

**Honors and Awards**

Dr. Murdaugh was appointed adjunct professor in the School of Nursing, The Johns Hopkins University, in January, 1993. She was also re-appointed adjunct clinical professor, School of Nursing, University of Hawaii.

**Publications**

Leidy NK. Operationalizing Maslow's theory: Development and testing of the Basic Need Satisfaction Inventory, Issues Ment Health Nurs 1994; 15(3): 277-295.

Leidy NK, Darling-Fisher C. Reliability and validity of the Modified Erikson Psychosocial Stage Inventory in diverse clinical samples, West J Nurs Res, in press.

Leidy NK, Traver G. Adjustment and social behavior in patients with COPD. Resp Care Critical Care Med 1994; 149(4), A269.

Parsons M, Murdaugh C. eds. Patient centered care: A model for restructuring. Gaithersburg: Aspen, 1994.

**Presentations**

Leidy NK. Functional Status: Toward a new analytic framework. Invited paper, presented at the American Thoracic Society International Conference, May 1994, Boston MA.

Leidy NK. Overview of issues in functional status: Toward a coherent analytical framework. In K Potempa (Chair), Functional impairment and disability: Cutting-edge concepts and research. Invited paper, Synthesis Conference of the Physiological Phenomena Research Section, Midwest Nursing Research Society, April 1994, Milwaukee, WI.

Leidy NK. Synthesis of measurement issues. In K Potempa (Chair), Functional impairment and disability: Cutting-edge concepts and research. Invited critique and synthesis for the Physiological Phenomena Research Section Synthesis Conference, Midwest Nursing Research Society, April 1994, Milwaukee, WI.

Leidy NK, Murdaugh C. Functional status and quality of life: Two sides of the same coin? Round Table Discussion Section, ANA Council of Nurse Researchers Scientific Sessions, November 1993, Washington, DC.

Leidy NK, Traver G. Adjustment and social behavior in patients with COPD. Poster presented at the American Thoracic Society International Conference, May 1994, Boston, MA.

Leidy NK, Traver G. Understanding functional ability in people with chronic obstructive pulmonary disease. Paper presented at the ANA Council of Nurse Researchers Scientific Sessions, November 1993, Washington, DC.

Leidy NK, Weaver T. Functional state and quality of life in chronic lung diseases. Co-Chair, poster discussion session, American Thoracic Society International Conference, May 1994, Boston, MA.

Murdaugh C. Predictors of cardiac risk factor beliefs and risk reducing activities: A test of the preventive behavior model. Research: Pathways to Knowledge, Scientific Sessions, American Nurses Association Council of Nurse Researchers, November 1993, Washington, DC.

Murdaugh CL. Facilitating research in the clinical setting. Keynote, Federal Nursing Research Symposium, November 1993, Washington, DC.

Murdaugh CL. The role of interactive computer simulation in data collection. 32nd Biennial Convention, November 1993, Indianapolis, IN.

Murdaugh CL. Health care reform and science at the National Institutes of Health. Keynote, 20th Anniversary Beta Mu, Sigma Theta Tau, May 1994, Tucson, AZ.

Murdaugh CL. Predictors of quality of life in heart transplantation. Invited presentation, XII World Congress of Cardiology, September 1994, Berlin, Germany.

Carolyn L. Murdaugh, PhD, RN

**Individual Project Reports**

DEPARTMENT OF HEALTH AND HUMAN SERVICES - PUBLIC HEALTH SERVICE

# NOTICE OF INTRAMURAL RESEARCH PROJECT

PROJECT NUMBER

Z01 NR00003-03 HRHI

PERIOD COVERED

October 1, 1992 to September 30, 1993

TITLE OF PROJECT *(80 characters or less. Title must fit on one line between the borders.)*

Burden, Quality of Life of Elderly Caregivers in Alzheimer's Disease (N01-HC-05102)

PRINCIPAL INVESTIGATOR *(List other professional personnel below the Principal Investigator.) (Name, title, laboratory, and institute affiliation)*

Carolyn L. Murdaugh Contract Federal Advisor
Chief, Laboratory for the Study of Human Response to Health and Illness (HRHI)

COOPERATING UNITS *(if any)*

NHLBI (Honolulu Heart Program), NIA, Kuakini Medical Center, Honolulu, HI

LAB/BRANCH

Laboratory for the Study of Human Response to Health and Illness (HRHI)

SECTION

INSTITUTE AND LOCATION

NINR, NIH; Building 31, Room 5B25; 9000 Rockville Pike; Bethesda, MD 20892

| TOTAL STAFF YEARS: | PROFESSIONAL: | OTHER: |
|---|---|---|
| 1.0 | 1.0 | Contract |

CHECK APPROPRIATE BOX(ES)

☒ (a) Human subjects ☐ (b) Human tissues ☐ (c) Neither
☐ (a1) Minors
☒ (a2) Interviews

SUMMARY OF WORK *(Use standard unreduced type. Do not exceed the space provided.)*

The total cost to the Nation for the care of AD patients is estimated at $90 billion, including medical and nursing home care, social services, lost productivity, and early death. The burden is not solely financial; caregivers and family members may suffer from isolation, depression, exhaustion, and increased health problems, as well as financial strain.

In spite of the fact that dementia is a major growing health and social problem as well as a major emotional and financial burden on families, little information is available in the types and patterns of caregiving, types and patterns of health care services use, and the costs of care. In addition, the ability of elderly women and/or working daughters or sons to provide long term care, and the types of interventions and services that facilitate elderly women or working persons to care for a demented loved one have not been adequately identified.

The purpose of this study is to describe predictors of caregiver burden and quality of life in elderly caregivers of persons with Alzheimer's Disease (AD) in the Honolulu Asian Aging Study of the Honolulu Heart Program. The caregivers are elderly spouses or siblings of Japanese American men between the ages of 70 and 90 who have been diagnosed with dementia.

In a longitudinal study, 150 caregivers of persons with AD and 150 spouses of a control group are participating in both face to face and telephone interviews every three months for two years. Information collected about the caregiver includes demographic data, acculturation, perceived control, social networks, social support, health status, health service use, burden, coping strategies, depression, functional status, life satisfaction, and social well-being. Information collected about the demented person includes driving behaviors, self-care behaviors, health status, health service use, and progression of dementia behaviors. Data collection has been underway since March 31, 1991 and will continue until 1996 to complete the longitudinal component.

**Title:**
"Caregiving, Health, and Quality of Life of Elderly Caregivers and Potential Caregivers of Persons with Dementia" (N01-HC-05102)

**Principal Investigator:**
Carolyn L. Murdaugh, PhD, RN Contract Federal Advisor
Chief/HRHI, NINR

**Other Investigators:**
Lon White, NIA; Webb Ross, Honolulu VA; Jane Kadohiro, University of Hawaii; Carol Trockman, Kuakini Medical Center; Helen Petrovich, Kuakini Medical Center; Kamal Masaki, Kuakini Medical Center; David Curb, University of Hawaii

**Objectives:**
1. Describe the major predictors (demographic factors, cognitive status, acculturation, perceived control, coping strategies, family network, social support) of caregiver burden and its consequences (changes in functional performance, health care use and quality of life measures of social well being, emotional well being and life satisfaction) in caregivers of elderly men with dementia and significant others of elderly men with normal cognitive function.
2. Describe changes in predictors and consequences of caregiver burden and quality of life over the course of the dementing illness.
3. Describe the relationship between dementia behaviors of the elder and caregiver consequences over the course of the dementing illness.
4. Describe the caregiver and elder predictors of institutionalization of the demented elder.
5. Describe the caregiver consequences (changes in health status, quality of life) of institutionalization of the demented elder.

**Methods:**
A descriptive longitudinal design has been implemented comparing caregivers of a demented group and significant others of a non-demented comparison group at baseline and every three months for two years.

All caregivers (CG) and significant others (SO) of elders who have been randomly selected from a sample of study participants who have been stratified on cognitive assessment score, age and education. A projected sample size is N=150 for the demented group of CG and N=150 for the comparison group of SO.

Measures include the Blessed Dementia Scale, IQCode, Behavior Problem Checklist, Driving Behaviors Questionnaire, Social Network Scale, Social Support Scale, Family Network Scale, Perceived Control Index, Revised Ways of Coping Scale, Caregiver Burden Index, Depression, Social Participation Scale, Life Satisfaction Scale, Functional Status Questionnaire, Health Services Use Questionnaire, Sleep Questions, Leisure Activities Questionnaire. In addition data collected on the demented or control elder in the Aging and Dementia examination are accessible.

All CG and SO are followed via telephone interviews every three months for two years following a baseline clinic visit for a face to face interview. In addition the CG of the demented elder receives a home visit prior to implementing the 3 month telephone follow up calls. Data on both the CG/SO and the demented or control elder are obtained.

**Progress to Date:**
Data collection was initiated March 31, 1991, for the longitudinal component. As of August 1, 1994, a total of N=950 potential CG/SO have completed the initial baseline clinic visit. (The potential CG/SO attends the clinic with the elder who is undergoes an initial screening examination for dementia.) A total of N=150 are being followed in the demented group, and N=150 are being followed in the control group. Dropout rates have been low: 12% for the control group and 14% for the demented group. Three fourths of the CG/SO are elderly spouses and one fourth are daughters or sons.

**Significance:**
The caregiving study addresses critical questions related to caregiving and quality of life of adults who care for elderly persons with a debilitating chronic illness. The information gained will enable investigators to develop and test interventions to decrease burden and improve the health and quality of life for elderly female caregivers as well as working women and men.

**Proposed Course:**
Data collection will continue until December 1995. In addition, the study will be replicated in collaboration with the Aging and Dementia replication study conducted by the National Institute on Aging beginning in October 1994. The replication study will be expanded to include a detailed physical assessment of physical and cognitive functioning, a measure of immune functioning, and a bereavement follow up for persons whose elder dies during the course of the study.

This study is being conducted through an intra-agency agreement with the National Heart, Lung, and Blood Institute (NHLBI). The NHLBI has a contract with Kuakini Medical Center, Honolulu, Hawaii for the Honolulu Heart Program and the Honolulu Aging Study.

DEPARTMENT OF HEALTH AND HUMAN SERVICES - PUBLIC HEALTH SERVICE

# NOTICE OF INTRAMURAL RESEARCH PROJECT

PROJECT NUMBER

Z01 NR00007-01 HRHI

PERIOD COVERED

October 1, 1992 to September 30, 1993

TITLE OF PROJECT *(80 characters or less. Title must fit on one line between the borders.)*

A Study of Quality of Life in Persons with HIV Disease (93-I-0147)

PRINCIPAL INVESTIGATOR *(List other professional personnel below the Principal Investigator.) (Name, title, laboratory, and institute affiliation)*


| | | |
|---|---|---|
| PI: | Carolyn L. Murdaugh | Chief, HRHI, NINR |
| Others: | Christine Grady | Research Associate, CTL, NINR |
| | Sakineh Walther | Research Nurse, HRHI, NINR |


COOPERATING UNITS *(if any)*

NIH Clinical Center Nursing Department (B. Barrick, L. Govoni)
NIAID

LAB/BRANCH

Laboratory for the Study of Human Response to Health and Illness (HRHI)

SECTION

INSTITUTE AND LOCATION

NINR, NIH; Building 31, Room 5B25; 9000 Rockville Pike; Bethesda, MD 20892

| TOTAL STAFF YEARS: | PROFESSIONAL: | OTHER: |
|---|---|---|
| 1.0 | 1.0 | 1.0 |

CHECK APPROPRIATE BOX(ES)

☒ (a) Human subjects ☐ (b) Human tissues ☐ (c) Neither
☐ (a1) Minors
☒ (a2) Interviews

SUMMARY OF WORK *(Use standard unreduced type. Do not exceed the space provided.)*


The purpose of this research is to describe physical and psychological predictors of quality of life (QOL) and changes in these predictors with the course of the illness in persons with HIV Disease. Two phases of the study have been completed. In Phase I, 14 adults who are HIV positive and enrolled in an NIAID drug protocol, participated in a 60 minute audiotaped interview. Interview data were transcribed and analyzed using grounded theory methods. In Phase II, a total of 12 men with HIV Disease participated in 1½-2 hour focus group interviews which were audiotaped. The data were described and content analyzed.

Findings from Phase I and II were used to refine the Quality of Life Model which is now undergoing testing in Phase III, a longitudinal component in which patients with HIV Disease complete a set of questionnaires at baseline, six months, and one year. In addition, laboratory data are obtained from patient records.

All of the subjects except one were men with a mean age of 38 (±5). All were Caucasian, well educated, and fairly healthy. Results describe the psychosocial experiences of persons as they adjust to HIV disease from diagnosis, in relation to the health related life quality. The process is not linear, as life shifts in and out of balance in relation to the disease progression and its physical and emotional consequences. Findings support and expand the Quality of Life Model, which differentiates predictors of QOL as an endpoint.

**Title:** "A Study of Quality of Life in Persons with HIV Disease" (#93-I-0147)

**Principal Investigator:**

| | |
|---|---|
| Carolyn L. Murdaugh, PhD, RN | Chief/HRHI, NINR |

**Others Investigators:**

| | |
|---|---|
| Christine Grady, PhD, RN | Research Associate/NINR |
| Sakineh Walther, RN | Research Nurse/NINR |
| Bill Barrick, MS, RN | Head Nurse, 8th Floor Clinic/CCND |
| Laura Govoni, MS, RN | Psychiatric Nurse Liaison, 8th Floor Clinic/CCND |

**Objectives:**

1. Identify the components of quality of life for person with HIV Disease.
2. Describe the variables in the Quality of Life Model in HIV Disease which are significant predictors of quality of life of persons with HIV Disease.
3. Describe changes in significant predictors of quality of life over the course/progression of the disease.
4. Describe the relationship of age, socio-economic background, and severity of illness on quality of life in persons with HIV Disease

**Methods:**

A three phased exploratory/descriptive longitudinal design is currently in process. In Phase I a grounded theory approach was implemented within an exploratory design. Phase II incorporates focus groups to validate the information obtained in Phase I as well as the other concepts in the Quality of Life Model. In Phase III the Quality of Life Model will be tested within a descriptive design.

Subjects who are currently participating in selected NIAID protocols or have previously participated in such protocols are invited to participate. Inclusion criteria for all phases include a diagnosis of HIV Disease, age 18 or older, able to speak, and write and read English. Persons with AIDS dementia are excluded.

For Phase I, 14 subjects were recruited. For Phase II approximately 12 subjects participated in the focus group. In Phase III a minimum of N=140 subjects will be recruited.

Measures: Open ended interviews were the method of obtaining data in Phase I. Interviews were audiotaped and transcribed work for word. Focus Groups was the method of data collection for Phase II. The group discussions were audiotaped and transcribed work for word. In Phase III paper and pencil questionnaires are used to assess the following concepts. Predictor concepts include Symptom Frequency and Distress, Functional Performance, Cognitive Status, Social Support, Perceived Unpredictability, Perceived Control, Unpredictability Management, Hope Maintenance, and Finding Meaning. The outcome concept is quality of life, with multiple indicators, including emotional and social well being. In addition, laboratory data on immune function, infection, and complications are obtained from chart data.

**Major Findings/Report of Activities:** (Progress to Date)

Subject accrual began in July, 1993, for Phase I, and N=14 subjects were recruited. Subject recruitment

for Phase II began in October 1993, and 12 patients were recruited. All of the audiotapes from the interviews to date have been transcribed, and the data were analyzed concurrently as interviews were conducted, using the methods of constant comparative analysis. The findings from Phases I and II supported the Quality of Life Theoretical Model indicating that both physical and psychosocial factors determined the quality of life of patients with HIV.

**Significance:**
Sine HIV Disease is now considered a chronic illness, the health related quality of life of infected persons becomes paramount as they learn to live with the disease and treatments. Once factors that either enhance or detract from the quality of life of these persons are identified and described, therapeutic interventions can be developed and implemented to facilitate successful adjustment to living with an chronic illness that has a downward trajectory.

**Proposed Course:**
Phase III longitudinal data collection is underway. Plans are to expand the study to minority women and men, as well as persons who have different socioeconomic backgrounds than the current sample.

DEPARTMENT OF HEALTH AND HUMAN SERVICES - PUBLIC HEALTH SERVICE

# NOTICE OF INTRAMURAL RESEARCH PROJECT

PROJECT NUMBER

Z01 NR00008-01 HRHI

PERIOD COVERED

December 6, 1993 to September 30, 1994

TITLE OF PROJECT *(80 characters or less. Title must fit on one line between the borders.)*

Isolating Functional Performance in Chronic Illness (NCN93-12-01-02)

PRINCIPAL INVESTIGATOR *(List other professional personnel below the Principal Investigator.) (Name, title, laboratory, and institute affiliation)*

Nancy Kline Leidy, Senior Staff Fellow, HRHI/NINR

COOPERATING UNITS *(if any)*

1. Johns Hopkins Asthma & Allergy Center
2. Francis Scott Key Medical Center

LAB/BRANCH

Laboratory for the Study of Human Responses to Health and Illness (HRHI)

SECTION

INSTITUTE AND LOCATION

NINR, NIH, Bethesda, MD 20892

| TOTAL STAFF YEARS: | PROFESSIONAL: | OTHER: |
|---|---|---|
| | | |

CHECK APPROPRIATE BOX(ES)

☒ (a) Human subjects ☐ (b) Human tissues ☐ (c) Neither

☐ (a1) Minors

☐ (a2) Interviews

SUMMARY OF WORK *(Use standard unreduced type. Do not exceed the space provided.)*

The extent to which functional capacity and performance influence quality of life has not been determined, in part, because of conceptual confusion and methodologic redundancy. The purpose of this study is to isolate functional performance as a predictor and as an outcome variable.

Three Phases are involved: *Phase I*. A Qualitative Study of the Elements and Meaning of Functional Performance. *Phase II*. Objective and Subjective Quantification of Activity Patterns and Performance. Briefly, a convenience sample of 40 men and women with COPD or symptomatic cardiac disease will be asked to complete a questionnaire booklet and wear a Motionlogger Actigraph to track and count movements over a 48 hour period. *Phase III*. A Survey of Patient and Family Members' Perceptions of Performance. Questionnaire booklets will be completed by 260 randomly-selected patients with COPD and symptomatic cardiac disease. In addition, 100 significant others will describe patient functional performance.

*Phase I* was designed to: 1) identify, name, and categorize the elements of functional status; 2) gain insight into the abstract concept of functional status and its meaning from the perspective of older adults experiencing a chronic physical illness; 3) compare and contrast the qualitatively-derived description of functional status with the analytic model, and 4) form a qualitatively-derived data base from which to construct a precise and useful survey measure of functional performance (the FPI).

Phase I of the investigation is nearing completion. Twelve people with COPD (6 men, 6 women) and 6 with coronary artery disease (4 men, 2 women) were interviewed. Subjects represented all socioeconomic levels and three of those with COPD were of African-American descent. Data analyses are in progress. Phase II (N=40) and III (N=260) of the study will begin shortly.

**Title:** "Isolating Functional Performance in Chronic Illness"

**Principal Investigator:**
Nancy Kline Leidy, PhD, RN Senior Staff Fellow

**Other Investigators:**
Robert A. Wise, MD, Johns Hopkins University & JHU Asthma & Allergy Center
Cynthia Rand, PhD, Johns Hopkins University & JHU Asthma & Allergy Center

**Objective:**
1. To understand, isolate, and measure functional performance, as an element of functional status and predictor of life quality, in adults with a chronic physical illness.

**Methods:**
Qualitative and quantitative methods are being used to address the above aim. Three Phases are involved: *Phase I.* A Qualitative Study of the Elements and Meaning of Functional Performance. The aims, methods and findings of this phase are described below. *Phase II.* Objective and Subjective Quantification of Activity Patterns and Performance. Briefly, a convenience sample of 40 men and women with COPD or symptomatic cardiac disease will be asked to complete a questionnaire booklet comprised of the newly-developed Functional Performance Inventory (FPI), Functional Status Questionnaire, the Duke Activity Status Index, an illness symptom checklist, the BNSI, Cantril's Ladder, and a demographic data sheet. They will also complete an NIH Activity Record and wear a Motionlogger Actigraph to track and count movements over a 48 hour period. *Phase III.* A Survey of Patient and Family Members' Perceptions of Performance. The questionnaire booklets outlined above will be completed by 260 randomly-selected patients with COPD and symptomatic cardiac disease. In addition, 100 significant others will describe patient functional performance by completing the FPI and the KAS-R. They will also be asked about their own health, functioning (FSQ), needs (BNSI), and life quality (Cantril).

*Phase I* (third aim) was designed to: 1) identify, name, and categorize the elements of functional status; 2) gain insight into the abstract concept of functional status and its meaning from the perspective of older adults experiencing a chronic physical illness; 3) compare and contrast the qualitatively-derived description of functional status with the analytic model, enriching the latter through clarified definitions, differentiation of concepts, and interrelationships; and 4) form a qualitatively-derived data base from which to construct a precise and useful survey measure of functional performance (the FPI).

Twelve purposively-selected patients with COPD (6 men, 6 women) and 6 with coronary artery disease (4 men, 2 women) were interviewed over a three month period. All socioeconomic levels were represented, and 3 of the patients with COPD were of African-American descent. Subjects described a typical day in their lives, including the type, importance, and difficulty of activities they performed. The interviews, which lasted 30 to 60 minutes, were audiotaped, transcribed and content analyzed using Ethnograph. Subjects were also asked to complete a precursory functional performance questionnaire, commenting on the representativeness and relevance of the items and ease of responding. Ten of the 12 patients with COPD and each of the 6 with cardiac disease returned a completed questionnaire. Content and observational field notes were completed on site at the time of the interview.

**Major Findings and Report of Activities:**

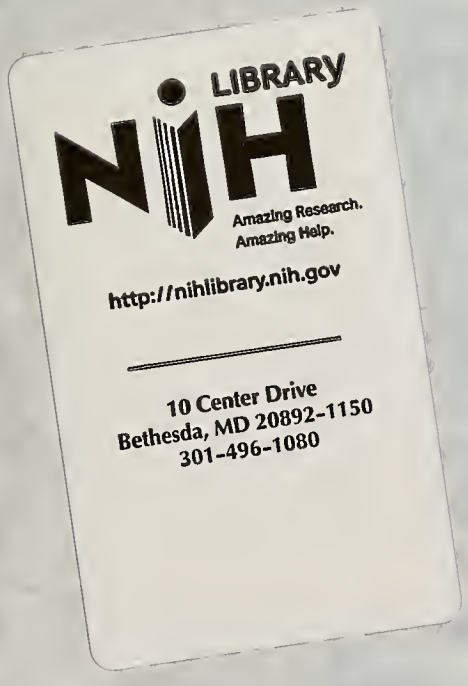
The interviews and qualitative data analyses of Phase I added depth to earlier work. Activity-based manifest codes were developed which described performance activities of these subjects. These codes closely approximated the Nursing Intervention Classification (NIC), supporting the validity of the former. Latent themes added depth to understanding the phenomenon of functional performance and its relationship to quality of life in men and women who are chronically ill.

**Significance of Research for Biomedical Research & the Program of NINR:**
Quality of life and functional status are important considerations and outcomes in clinical practice and research, and yet there is a great deal of confusion about these phenomena. Functional status has been considered a component, antecedent, as well as an equivalent of quality of life. This has led to confusion in theoretical modeling, research design, and the measurement of outcomes. In order to develop appropriate theoretical and empirical models and evaluate the impact of clinical trials on life quality and functional status, the unique attributes and interrelated characteristics of these phenomena must be clarified.

**Proposed Future Course:**
Qualitative analyses of data from Phase I is nearing completion. Data collection for Phases II and III will begin shortly. Results from these studies will be used for additional model testing and to evaluate the differential effect of experimental protocols on the life quality and functional status of men and women with a chronic physical illness.

**Publications:**
Leidy NK. On functional status and the forward progress of merry-go-rounds: Toward a coherent analytical framework for conceptualizing functional status, Nurs Res, in press.

Leidy NK. State of the Science: Functional ability in people with chronic obstructive pulmonary disease, Image J Nurs Sch, in press.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